

## PATENT COOPERATION TREATY 2.1 -07- 2005 20

## PCT

NOTIFICATION CONCERNING WRITTEN  
OPINION OF THE INTERNATIONAL SEARCHING  
AUTHORITY AND AMENDMENTS OF CLAIMS(PCT Rule 62 and  
Administrative Instructions, Section 417(d))

From the INTERNATIONAL BUREAU

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Applicant

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The International Bureau hereby transmits a copy of the amendments to the claims under Article 19 together with any accompanying statement (Rule 62.1(ii)).

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**AMENDED CLAIMS**

[received by the International Bureau on 31 January 2005 (31.01.2005);  
original claims 1 amended, remaining claims unchanged (1 pages)]

1. An afterburner device for stoves for burning wood or other types of bio-mass, coke or coal, supplying fresh, heated air to a zone (14) in the stove above  
5 the stove's combustion chamber (13),  
characterised in that the device is constituted by a plate (1), that is folded and provided with holes (4, 6), wherein the plate is installed on the inside of a side or rear wall of an existing traditional stove constructed without aperture(s) for secondary air, and for cooperation with at least one secondary air aperture (2)  
10 arranged in said wall upon installation of the plate (1) in the already existing stove.
2. The afterburner device according to claim 1,  
characterised in that the plate (1) has a number of holes or slits (4) near  
15 a folded end (16a) of the plate (1), the holes or slits (4) being arranged at the uppermost edge when installed, to allow air to get to the said zone (14), as at least one secondary air aperture (2) is arranged in a position just above a lower folded end (16b) of the plate (1) when it is installed; whereby air can be pre-heated while rising up behind the plate (1).
- 20 3. The afterburner device according to claim 1,  
characterised in that the plate (1) is provided with holes (6) near a folded end (16b) of the plate (1) where the holes (6) are arranged towards the bottom edge when installed, to establish and maintain a pilot flame.
- 25 4. The afterburner device of claim 1,  
characterised in that the plate (1) consists of two parts (15a, 15b) which can be mutually displaced to provide an adjustable dimension in a lateral direction when installed, for adaptation to stoves of different sizes.

**AMENDED SHEET (ARTICLE 19)**

**STATEMENT UNDER ARTICLE 19 (1)**

This is an amendment and statement under Article 19.

Enclosed please find amended claims wherein the apparatus of claim 1 is defined as "... constituted by a plate (1), that is folded and provided with holes (4, 6), wherein the plate is installed on the inside of a side or rear wall of an existing traditional stove constructed without aperture(s) for secondary air, and for cooperation with at least one secondary air aperture (2) arranged in said wall upon installation of the plate (1) in the already existing stove." (amendment underlined).

The Examiner states that the person skilled in the art, having the device known from D1 or D2 as a starting point, aiming to solve the identified problem, would with the knowledge of D3 be able to modify existing stoves just by later installing an afterburner device such as those described in D1 and D2, thus arriving at the invention according to claim 1.

We respectfully disagree with the Examiner and have the following comments:

D1 (NO 63947 A, S. D. Cappelen) relates to a storey stove that incorporates a system with secondary air for afterburning that in principle resembles the system of the present invention. D2 (EP 0464293 A1, Les Cheminees Philippe SA) resembles D1. There are many newer stoves that incorporate secondary air for afterburning as also described in the description of the present invention.

Most stoves in use today do not incorporate secondary air for afterburning, and it is the aim of the present invention to provide an afterburner that readily can be installed in existing stoves of this kind.

D3 (FR 2626063 A1, Lantz, Marcel) relates to a comparatively large stove and builds on the double chamber principle. This involves that air is let in to flow up along the walls of the stove from intakes underneath the stove vault, and mixed with the smoke from the primary chamber above the vault. The room between the plates where through the air flows, also acts as insulation against the outer walls of the stove. It is not unusual for plate ovens to have a double wall on the outside in order to keep the surface temperature of the stove down (this is regulated by fire regulations). A stove of this kind does not require for example ceramic insulating tiles on the inside, nor double walls on the outside. Stoves of this kind require at least two air supplies due to their size in order to distribute sufficient fresh air in the entire combustion vault. The air that cools the walls will to some extent be preheated, but is not mixed with the smoke after the smoke leaves the combustion chamber and is about to enter the pipe. In this area the temperature is much lower than in the combustion vault, especially at low loadings. This system does not work very well as an afterburner at low loadings when the problem of unburnt particles is the greatest. One of the purposes of the present invention is to mix fresh air with the smoke in the actual combustion chamber, thereby being effective at low loadings. At high loadings it is usually not necessary with an afterburner anyhow. The plates described in D3 can perhaps be dismantled, but they are not in any way made to be installed in another stove in order to reduce emissions. Their design and purpose is to cool the stove and they are used as an alternative to for example ceramic insulating tiles, not as an afterburning principle. Furthermore, it necessitates air intakes on the back above the ash tray, because it is not provided with air intakes of the kind that the present invention is provided with.

In light of these comments, it can not be seen that a combination of D1 or D2 and D3 results in a device according to the present invention. Furthermore, D1 dates back all the way to 1941 and the various afterburning principles mentioned in D2 and D3 were developed prior to 1990, but today, 15 years later, there does still not exist on the market any arrangement that can be installed in already existing traditional stoves in order to provide the afterburner function, especially at low loadings.